

DISTRIBUTION OF THE JUMPING MOUSE, *ZAPUS HUDSONIUS*, IN OHIO: A TWENTY-YEAR UPDATE¹

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Unpublished Ohio records of *Zapus hudsonius* were collected from private and public museums. Data recorded included: locality and date of capture, collector, body weight and standard measurements. Seventeen new county records were added to the previous distribution through review of 45 new locality records. Capture dates indicated peak population levels in August. Male and female *Z. hudsonius* appear to be of similar size and weight in all age classes.

Zapus hudsonius, the meadow jumping mouse, was first recognized as a native Ohio species by Kirtland (1838). Langdon (1880) later listed *Z. hudsonius* among the mammals of the Cincinnati region. The first recorded capture from Ohio, however, was from Mahoning County by Vickers (1893). Gossard (1923) reviewed known records of *Z. hudsonius* in Ohio and reported specimens from Mahoning, Meigs, Ross, Scioto, Seneca and Summit Counties. Dexter (1954), in the first extensive study of Ohio jumping mice, condensed published records of two decades and extended the distribution to Ashtabula, Belmont, Carroll, Cuyahoga, Erie, Fairfield, Geauga, Jefferson, Lake, Lucas, Portage and Wayne Counties. Dexter also found that Gossard (1923) had incorrectly assigned the 1899 record of Preble at Portland Station, Ohio to Meigs County, and amended it to Warren Township of Jefferson County. Finally, using unpublished Ohio records and trapping sur-

veys, Dexter added forty-one new localities and eighteen new counties (Athens, Champaign, Columbiana, Franklin, Greene, Highland, Hocking, Huron, Knox, Licking, Madison, Medina, Perry, Pickaway, Stark, Tuscarawas, Warren and Wood) to the Ohio distribution. Except for the addition of a single record (Gottschang, 1961), there have been no subsequent reports on *Z. hudsonius* in Ohio.

In 1935 Hamilton presented measurements and weights of 22 adult specimens from central New York. Whitaker (1963) and Quimby (1951) included data on body weights from New York and Michigan, respectively. To our knowledge no other published information is available. The present study updates the work of Dexter (1954) and presents additional information on capture dates and body measurements of Ohio jumping mice.

METHODS

Museum records of *Z. hudsonius* were obtained from the following institutions: Bowling Green State University (BGSU), Cleveland Museum of Natural History (CMNH), Cincinnati Museum of Natural History (CinMNH), Defiance College (DC), Dayton Museum of Natural History (DMNH), Muskingum College (MC), Miami University (MU), Ohio State University Museum (OSU), Ohio University (OU), University of Akron (UA), University of Cincinnati (UC), and University of Dayton (UD). All available tag data, usually including locality and date of capture, collector, body weight, and body measurements, were recorded.

NEW RECORDS PRIOR TO 1954

Lorain County

*Vermilion, 1 (V-24-07), BGSU

NEW RECORDS AFTER 1954

Adams County

Rome, 2 (VI-16-68), DMNH

Athens County

Athens, 1 (IV-29-61), OU

Belmont County

Dysart Woods, 1 (VIII-17-68), OU

*Locality, number of specimens, (date of capture), museum.

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Brown County
Georgetown, 1 (1973), CinMNH
Butler County
Oxford, 2 (IX-69), MU
Darke County
Ansonia, 1 (XII-16-71), 2 (V-27-71), DMNH
Defiance County
Defiance, 1 (VII-5-66), 1 (VI-10-66), 1 (VII-13-66), DC
Fairfield County
Walnut Twp., 1 (XI-16-64), OSU
Rushcreek, 1 (X-20-58), OSU
Franklin County
Columbus, 1 (VII-22-66), 1 (X-10-66), 1 (1966), 1 (X-19-66), 1 (VII-9-67), 1 (VII-31-67), 1 (VI-23-66), 1 (VII-27-66), OSU

Fulton County
Harrison Lake State Park, 1 (V-7-67), BGSU
Burlington, 2 (VII-10-72), OSU
Oakshade, 1 (X-20-72), OSU
Greene County
Wright-Patterson Air Force Base, 1 (IV-18-67), 2 (IV-17-67), 1 (IV-15-67), DMNH
Hamilton County
Anderson, 2 (XII-22-70), CinMNH
Highland County
Bainbridge, 2 (VIII-27-72), 1 (IX-3-72), 2 (VIII-19-72), 1 (VIII-17-72), OSU
Centerfield, 1 (VII-30-72), OSU; 1 (VII-5-73), BGSU
South Greenfield, 2 (VII-26-72), OSU

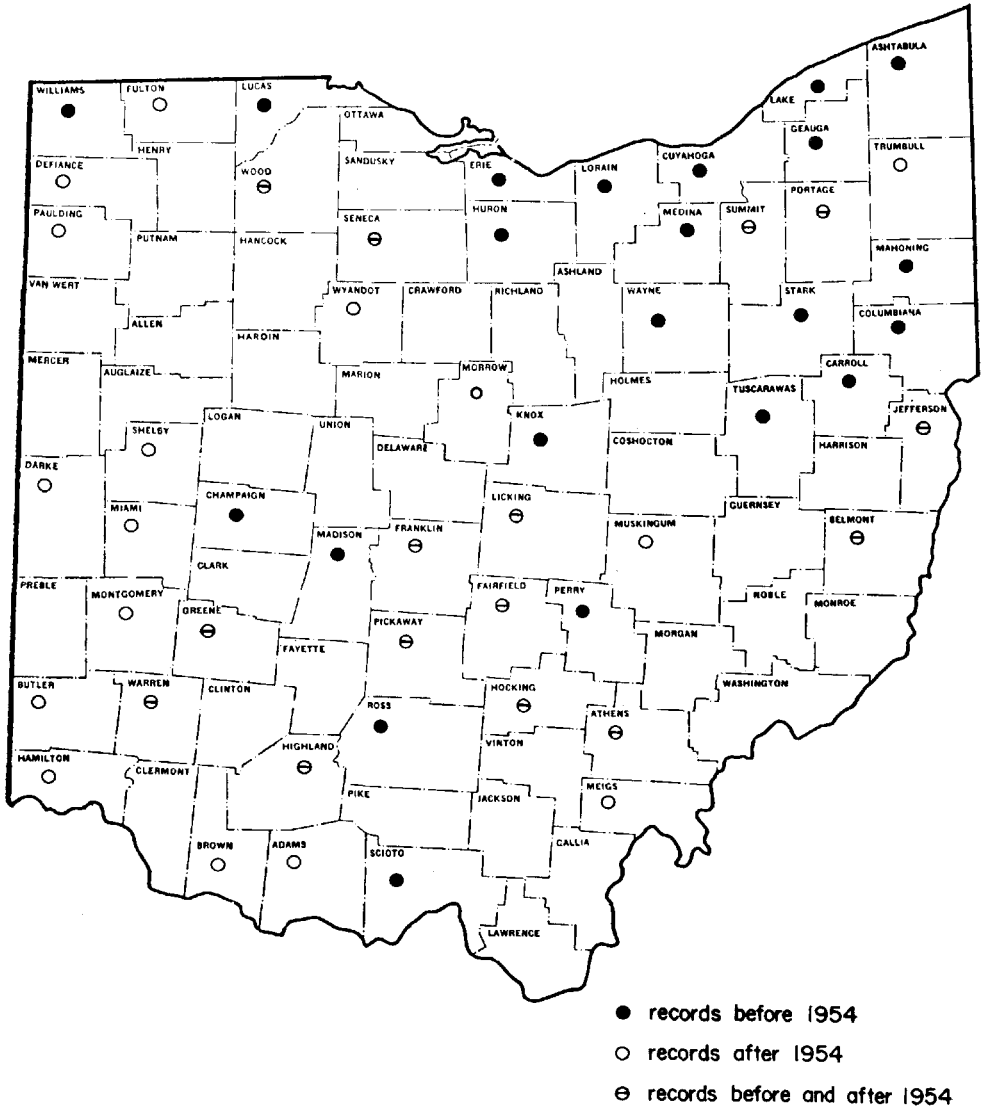


FIGURE 1. Distribution of *Zapus hudsonius* in Ohio by county.

Hocking County	Summit County
Green Twp., 1 (IX-4-69), OSU	Akron, 1 (IX-1-70), UA
Jefferson County	Trumbull County
Bergholz, 1 (VI-28-60), 1 (VI-17-60), 1 (IX-28-59), OSU	Warren, 1 (V-21-65), UC
Salem, 1 (VIII-20-54), 1 (V-1-54), OSU	Warren County
Licking County	Turtle Creek, 1 (X-1-60), CinMNH
Granville, 1 (VIII-27-65), UC	Wood County
Meigs County	Bowling Green, 1 (VII-72), 1 (X-14-64), 2 (VII-73), BGSU
Pratts Fork, 1 (VIII-16-61), OU	Portage, 1 (IV-20-72), BGSU
Miami County	Wyandot County
Silver Lake, 1 (V-16-68), DMNH	Killdeer Plains, 1 (IX-2-71), 1 (VI-12-71), BGSU
Montgomery County	
Aullwood, 1 (XI-16-60), DMNH	
Bellbrook, 2 (V-5-68), 1 (V-4-68), DMNH	
Dayton, 1 (VII-6-70), DMNH	
Kettering, 1 (VI-5-68), 2 (V-24-68), DMNH	
Sutherland Falls, 1 (IX-4-62), DMNH	
Morrow County	
Westfield, 1 (X-10-70), OSU	

DISTRIBUTION AND MEASUREMENTS

Early trapping records of *Z. hudsonius* indicated that the species was concen-

TABLE 1
Monthly incidence of capture of *Z. hudsonius* in Ohio.

	Month												Total
	J	F	M	A	M	J	J	A	S	O	N	D	
Male	0	1	0	6	14	10	32	36	14	4	2	0	119
Female	0	2	0	2	5	6	21	30	19	10	2	0	97
Sex not recorded	0	0	0	1	2	2	2	7	5	1	1	0	21
Total	0	3	0	9	21	18	55	73	38	15	5	0	237

Muskingum County	trated in northeastern Ohio and along the Allegheny Plateau (Dexter, 1954). Dexter noted that this discontinuous distribution seemed to be related to a lack of systematic trapping and low trapability rather than to the absence of the species. New records indicate that the species is widely distributed over Ohio (Figure 1). Seventeen new counties (Adams, Brown, Butler, Darke, Defiance, Fulton, Hamilton, Lorain, Meigs, Miami, Montgomery,
(county locality only), 2 (no date), MC	
Paulding County	
Washington Twp., 1 (VI-7-71), OSU	
Pickaway County	
Walnut Twp., 1 (V-1-71), OSU	
Ross County	
Kinnikinnick, 1 (no date), OSU	
Seneca County	
Beltsville, 1 (VI-24-68), BGSU	
Shelby County	
McCaryville, 1 (VII-30-68), 1 (VII-31-68), DMNH	

TABLE 2
Weight and measurements of *Z. hudsonius* in Ohio.

Group	Total Length*	Tail Length	Ear Length	Hind Foot Length	Weight
	N** mean \pm SD	N mean \pm SD	N mean \pm SD	N mean \pm SD	N mean \pm SD
Adult ♂	67 204.8 \pm 9.7	67 120.0 \pm 14.6	55 11.2 \pm 2.2	67 28.9 \pm 1.3	35 16.4 \pm 2.1
Adult ♀	56 207.2 \pm 8.8	56 122.2 \pm 7.3	51 11.1 \pm 1.5	56 28.9 \pm 1.8	19 17.6 \pm 3.5
Subadult ♂	52 182.0 \pm 19.5	51 113.0 \pm 12.7	41 10.8 \pm 2.1	52 28.1 \pm 2.0	14 12.3 \pm 2.0
Subadult ♀	34 183.0 \pm 11.7	33 111.4 \pm 10.5	27 10.7 \pm 1.1	34 28.1 \pm 1.7	11 12.3 \pm 4.7

*Mice less than 78 mm body length are classified as subadults (Whitaker, 1963).
**N= Number of mice measured.

Morrow, Muskingum, Paulding, Shelby, Trumbell, and Wyandot) have been added, many of them in the western part of the state.

The meadow jumping mouse is found primarily in marshes, near pond edges, and in fields and brushy areas (Whitaker, 1963). Records from northeast Ohio since 1954 are limited to Portage, Summit and Trumbell counties. It is likely that destruction of habitat as well as reduction of trapping effort has contributed to the absence of recent records from other northeast counties.

A high incidence of capture of *Z. hudsonius* occurred from July through September (Table 1). The highest incidence of capture was during August, suggesting peak activity and/or highest population levels at this time. Blair (1940) described an earlier peak capture date, centering in June and July. Similarly, Quimby (1951) found a steady increase in density per acre for Minnesota populations which reach their highest levels in July. Most investigators seem to agree, however, that peak numbers of *Z. hudsonius* in an area varies in time from year to year (Blair, 1940; Quimby, 1951; Whitaker, 1963.)

Male mice appear to outnumber females until September when the reverse becomes evident. Whitaker (1963) found a similar pattern, but was unable to give a suitable explanation. Male and female *Z. hudsonius* appear to be identical in

weight and size when compared within their age class (Table 2). This finding is similar to that reported by Hamilton (1935). The Ohio specimens, however, were smaller in total length, tail length and hind foot length than the geographical variants from central New York reported by Hamilton.

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